UVB- Ultraviolet Biometer
Enviromental Tests

Print Date: May 6, 1994

Part Number: UVB-000257 Technician: _____

Unit S/N: _____

System Description The UVB is comprised of the items in the list below. Check the list and mark each item is included in this test. If the item is present mark with a √. If the item is **not included** or **non–standard**, mark with a x and enter an explanation in the 'special notes' below.

The items checked below must be fully fabricated and ready for testing BEFORE this test can begin. Exceptions to this requirement MUST be approved by QA.

DESCRIPTION	ARCS PART NO.
Solar Light Co. UV-Biometer	UVB–000258
Impulse, 6-pin pigtail connector	210-000023

Special Notes: This system has been modified or is different from a standard UVB Assembly by the following: An Impulse water tight connector has been added to match the TWP datalogger.

Revisions **Version 1.a.** Aug.11, 1994 Original Version

TESTS TO BE COMPLETED IN ORDER

Contents

General Instructions: The tests here should be completed exactly as the instructions indicate.

- All test instructions should be followed exactly.
- If any item does not agree with the configuration the pertinent lines should be marked to that affect.
- If a line is preceded by an underline, e.g., __, that space should be checked (√) to signify that the line has been read and the unit agrees with the line.
- If a line does not apply to the system under test, then the underline will be filled in with an x, (x).
- When a data entry is required, a range of values is given to the right in parenthesis. **If your measured data falls outside the specified range, STOP the test and check with the QA engineer.**
- **Important.** If you, the tester find errors or obsolete information in this form, mark it carefully and alert QA of the problem. *With YOUR help we can keep our test procedures current and accurate.*

Equipment List The following equipment is needed for these tests. **Be sure to enter all serial numbers and Calibration numbers on the test data sheet.**

CALIBRATED INSTRUMENTS

Instrument	**In Cal √ (date)**
Digital Multimeter	
Onset Lite datalogger (To collect output voltages)	

SUPPLIES AND TOOLS

6 pigtail connector	
Heat shrink of different sizes to insulate the connections	
Self vulcaizing tape	
3M 33 black electrical tape	
Soldering iron & low temp. Electronis solder	
Wire strippers	
Ultra-violet light source(sunlight if hand held unit is unavailable)	
Heat Gun	

Documentation The documentation should be present and filled out as much as possible.
__Traveller tag completely filled in with dates and initials
__ARCS manual for the UVB installation and maintenance.
__This document filled in correctly.

1 Workmanship Inspection

___ UVB cables smooth with no cuts or nicks.
___ Dome clean, no scratches.
___ Paint flawless, or scratches painted.
___ Part numbers and serial numbers clearly marked.
___ Note the unit calibration here.
Calibration:_____(Med/Hr.)
___ UVB bottom screws in place. Leveling screws in place.
___ Neat appearence and overall quality.

2 Cable Installation

This procedure is to install the impulse pigtail connector.
___Cut the original cable leaving 8 - 12 inches of cable from the sensor.
___Strip about 3cm of the jacket off each of the 2 cables.(Impulse & UVB)
___Strip and tin 5mm of each of the wires in each cable.
___Using heat shrink to insulate each wire, solder each connection using the following color codes.

UVB	Shield	Black	Blue	Green	Yellow	Orange	Red	Brown
Impulse	Sh/Green	Red	Black	Black	Yellow	Black	Orange	Brown

___Incase all the wires in two pieces of heat shrink.
___Wrap the connection with self vulcanizing tape over laping the end of the heat shrink by at least 0.5" on each end.
___Wrap the connection with 3M-33 black electrical tape, again overlaping the ends.

3 Bench Test

This test measures current drains and basic instrument functioning.
Test Setup The intrinsic test is as follows:
___ Setup the UVB on the bench.
___ Set the multimeter to 100mv full scale.
Expose the sensor to UV light.
___ Measure the voltage across pins 2 & 3: **Voltage:**_____(1.0–1.8 vDC)
___ Remve the light source and look for a decrease in output.
___ Connect power and measure the current draw of the heaters.
Measure the current:_____(.80-1.0 amps).
Current when heaters cycle off:_____(.01-.04 amps).

Tested By:	Completion Date:
QA By:	Qa Date:
Comments:	

3 Rain Test

___ Setup the equipment in the rain chamber. Cables run outside the box.
___ Start the vertical rain at full output. Be sure the unit is fully exposed. Rain for 5 minutes and inspect the unit.
  ___ Inside dome is dry.
___ Downward rain for one hour. Rotate several times. Inspect:
  ___ Inside dome is dry.
___ Set the multimeter to 100mv full scale.
___ Expose sensor to the UV light source and check for an increase in sensor output.
___ Remove the light and check for a decrease in sensor output.

4 Warm Test

This test will verify that all electronics and sensors will function proprely in warm conditions.

Test Setup The test equipment is arranged as follows:

___ Continue from the preceeding test. The unit is sealed and operational. The QA signoff has been completed.
___ Put the unit in the insulated box. The cables come outside the box so operation can be observed while the unit is under test.
___ Turn on the power supply.
___ Seal the box and let the system warm as quickly as possible to a maximum in the range of 60°C internal temp.
___ Leave the unit at this temperature for at least 6 hours or overnight. Watch carefully to be sure motor currents are within .8-1.0 A.

Warm Temperature Tests Perform these tests on the unit while the temperature is near it's maximum value.

___ Set the multimeter to 100mv full scale.
___ Expose sensor to the UV light source and check for an increase in sensor output.
___ Remove the light and check for a decrease in sensor output.

5 Cold Test

This test will verify that all electronics and sensors will function properly in cold conditions.

___ Continue from the preceding test.
___ Put the unit in the cold box. The cables come outside the box so operation can be observed while the unit is under test.
___ Attach Lite thermistors to the case on the UVB.
___ Put in coolant. Seal the box and let the system cool as quickly as possible to approximately –40°C.
___ Leave the unit at this temperature for at least 6 hours or overnight.
___ Set the multimeter to 100mv full scale.
___ Expose sensor to the UV light source and check for an increase in sensor output.
___ Remove the light and check for a decrease in sensor output.

NOTE: COMPLETE THE QA SIGNOFF BELOW BEFORE PROCEEDING BEYOND THIS POINT.

Tested By:	Completion Date:
QA By:	QA Date:
Comments:	

6 Final Steps

___ Review this test procedure. Clearly mark any places where the form can be improved or is inaccurate. We will routinely issue new procedures and, with your help, these forms will be accurate and up to date.
___ Type a new edited form for review.
___ Make two copies of this document.
  ___ One copy on file at BNL.
  ___ One copy mailed to the mentor for this instrument. (See mentor mailing list).
___ Prepare a priority (2–day) mail envelope addressed to:
Tropical Western Pacific Project Office
Los Alamos National Laboratory
Mail Stop J495
Los Alamos, NM 87545
___ Mail the completed, original test form to the project office.